

ANNOTATED LIST OF THE BARK AND AMBROSIA BEETLES
(COLEOPTERA: SCOLYTIDAE) OF DELAWARE, WITH NEW
DISTRIBUTIONAL RECORDS

ROBERT J. RABAGLIA AND MICHAEL A. VALENTI

(RJR) Forest Pest Management, Maryland Department of Agriculture, 50 Harry S. Truman Parkway, Annapolis, MD 21401, U.S.A. (e-mail: rabaglrj@mda.state.md.us); (MAV) Delaware Department of Agriculture, 2320 South DuPont Highway, Dover, DE 19901, U.S.A.

Abstract.—A total of 64 species of Scolytidae are reported from Delaware. Fifty-one species are reported for the first time: *Hylastes porculus* Erichson, *H. salebrosus* Eichhoff, *H. tenuis* Eichhoff, *Hylurgops rugipennis pinifex* (Fitch), *Hylesinus aculeatus* Say, *Dendroctonus frontalis* (Zimmermann), *D. valens* LeConte, *Cnesinus strigicollis* LeConte, *Phloeotribus liminaris* (Harris), *Phloeosinus dentatus* (Say), *Carphoborus bifurcus* Eichhoff, *Hylocurus rudis* (LeConte), *H. flaglerensis* Blackman, *Micracisella opaciicollis* (LeConte), *Thysanoes fimbriicornis* LeConte, *Ips grandicollis* (Eichhoff), *I. pini* (Say), *Orthotomicus caelatus* (Eichhoff), *Pityogenes hopkinsi* Swaine, *Dryocoetes autographus* (Ratzeburg), *D. granicollis* (LeConte), *Lymantria decipiens* (LeConte), *Xyloterinus politus* Say, *Ambrosiodmus obliquus* (LeConte), *A. rubricollis* (Eichhoff), *A. tachygraphus* (Zimmermann), *Eiwallacea validus* (Eichhoff), *Xyleborus atratus* Eichhoff, *X. celsus* Eichhoff, *X. ferrugineus* (Fabricius), *X. pelliculosus* Eichhoff, *X. pubescens* Zimmermann, *X. sayi* (Hopkins), *Xylosandrus crassiusculus* (Motschulsky), *X. germanus* (Blandford), *Hypothenemus crudiae* (Panzer), *H. dissimilis* (Zimmermann), *H. eruditus* Westwood, *Conophthorus coniperda* (Schwarz), *Corthylus columbianus* Hopkins, *Gnathotrichus materiarius* (Fitch), *Monarthrum fasciatum* (Say), *M. mali* (Fitch), *Pityophthorus cariniceps* LeConte, *P. confusus* Blandford, *P. liquidambarus* Blackman, *P. opaculus* LeConte, *P. puberulus* (LeConte), *P. scriptor* Blackman, *Pseudopityophthorus minutissimus* (Zimmermann), *P. pubescens* Blackman. Fourteen of the species are not native to North America.

Key Words: Scolytidae, distribution, Delaware

Though its geographical area is comparatively small, Delaware exhibits an extraordinary diversity of tree species and forest associations. Due to its location in a north/south floral transition zone, many of the forests that typify northern, central, and southern regions of the eastern United States can be found in Delaware (Tatnall 1946, Phillips 1978). Of the approximately 600 species of trees native to the entire United States, about 115 are native to Del-

aware (Taber 1939). About one third of the land in Delaware is covered with mostly second and third growth forests representing a fragmented patchwork of the original contiguous forest.

The diversity of tree species and forest associations in Delaware is not adequately reflected by the previously documented members of the Scolytidae in the state (Wood and Bright 1992). Such a disparity prompted a preliminary survey of this im-

portant forest insect group in 1997 followed by a more intensive state-wide survey in 1998.

In 1997, twelve Lindgren funnel traps baited with 95% ethanol and natural turpentine were placed in two forested areas and monitored from April through September. In 1998, thirty-six funnel traps were placed at 19 forested sites throughout the state and monitored from March through October. Traps were baited with a variety of lures including ethanol, turpentine, cut tree branches, and various commercially available (PheroTech Inc, Delta, BC, Canada) bark beetle pheromones such as frontalin (*Dendroctonus frontalis* (Zimmermann) pheromone) and sulcatol (a pheromone for a species of *Gnathotrichus*). Also in 1998, specimens at the University of Delaware in Newark were examined, as well as specimens collected by the Delaware Department of Agriculture during several years of agricultural pest surveys.

Two catalogs of Scolytidae (Wood and Bright 1992, Bright and Skidmore 1997) list only 11 scolytids from Delaware. We report an additional 51 species. Two additional species, *Xyleborus californicus* Wood and *Dryoxylon onoharaensum* (Murayama), were reported from Delaware for the first time in recent publications (Vandenberg et al. 2000, Bright and Rabaglia 1999). Almost all of these new records are for species that have been recorded from neighboring states, but were not recorded from Delaware. *Hylocurus flaglerensis* Blackman was not previously reported from the area, having been only known from Florida (Rabaglia 2003, also reported this species as new in Maryland). *Pityophthorus scriptor* Blackman is reported for the first time north of North Carolina.

Of the 64 species now reported from Delaware, 14 are not native to North America. Eight of these are ambrosia beetles in the tribe Xyleborini. Atkinson et al. (1990) pointed out the increasing occurrence of these beetles in the eastern United States.

Several species recorded from neighbor-

ing states likely will be found with further collecting in Delaware. In addition, Delaware's location on the east coast and increasing international trade in the area will result in additional exotic species becoming established. Three exotic species, *Tomicus piniperda* (L.), *Hylastes opacus* Erichson, and *Xyleborus pfeili* Eichhoff, and two western North American species of *Hylesinus* have recently been reported in Maryland (Vandenberg et al. 2000, Rabaglia and Williams 2002, Rabaglia 2003). Hoebeke (1991) reported the exotic ambrosia beetle, *Ambrosiodinus lewisi* (Blandford), for the first time in North America in southeastern Pennsylvania, near Delaware.

Abbreviations for repositories of specimens new to Delaware are: UDCC—University of Delaware, Newark DE; RJRC—Robert J. Rabaglia collection, Annapolis MD. Numbers of specimens appear in parentheses with abbreviations. Sources of published records are from Wood and Bright 1992, Bright and Skidmore 1997.

NEW DELAWARE RECORDS OF SCOLYTIDAE

Subfamily Hylesininae

Hylastes porculus Erichson

Distribution.—USA: AL, AR, CT, DC, FL, GA, IN, LA, ME, MD, MA, MI, MN, MS, NH, NJ, NY, NC, PA, SC, SD, TN, TX, VT, VA, WV, WI, DE: Kent Co., Little Creek Wildlife Area, 22 April 1998, M. A. Valenti coll. (2, RJRC); Sussex Co., Woodside, 20 April 1930, J. M. Amos coll. (1, UDCC).

Hylastes salebrosus Eichhoff

Distribution.—USA: AL, AR, FL, GA, LA, MD, MS, NJ, NC, SC, TX, VA, DE: New Castle Co., Blackbird State Forest, Tybout Tract, 27 May 1997, M. A. Valenti coll. (1, RJRC); Sussex Co., Redden State Forest, HQ Tract, 16 May 1997, M. A. Valenti coll. (2, RJRC).

Hylastes tenuis Eichhoff

Distribution.—USA: AL, AZ, AR, CA, DC, FL, GA, ID, IN, KY, LA, MD, MA,

MS, NV, NM, NY, NC, OR, PA, SC, TN, TX, UT, VA, WV, DE: New Castle Co., Blackbird State Forest, Wright Tract, 27 May 1997, M. A. Valenti coll. (2, RJRC); Sussex Co., Redden State Forest, HQ Tract, 24 April 1998, M. A. Valenti coll. (1, RJRC).

Hylurgops rugipennis pinifex (Fitch)

Distribution.—USA: AL, AZ, CA, CO, DC, GA, ID, ME, MD, MA, MI, MN, MT, NH, NJ, NM, NY, NC, OH, OR, PA, RI, SC, UT, VA, WV, WI, WY, DE: New Castle Co., Blackbird State Forest, Wright Tract, 30 April 1997, M. A. Valenti coll. (1, RJRC); Sussex Co., Redden State Forest, Appenzellar Tract, 24 June 1997, M. A. Valenti coll. (1, RJRC).

Hylesinus aculeatus Say

Distribution.—USA: AR, CO, CT, DC, GA, IL, IN, IA, KS, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NH, NJ, NY, NC, ND, OH, OK, PA, SC, SD, TN, TX, VA, WV, WI, DE: New Castle Co., Newark, 3 May 1904, C. O. Houghton coll. (1, UDCC).

Dendroctonus frontalis (Zimmermann)

Distribution.—USA: AL, AZ, AR, DC, FL, GA, KY, LA, MD, MS, NC, OK, PA, SC, TN, TX, VA, WV, DE: Sussex Co., Oak Orchard, Jan. 5 1961, D. F. Bray coll. ex. Loblolly pine (9, UDCC).

Dendroctonus valens LeConte

Distribution.—USA: AZ, CA, CO, ID, IL, IN, KS, ME, MD, MA, MI, MN, MT, NY, NH, NJ, NM, NY, NC, OH, OR, PA, SD, UT, VT, VA, WA, WV, WI, WY, DE: New Castle Co., Blackbird State Forest, Wright Tract, 30 April 1997, M. A. Valenti coll. (2, RJRC); Kent Co., Blackiston Wildlife Area, 23 April 1998, M. A. Valenti coll. (1, RJRC).

Cnesimus strigicollis LeConte

Distribution.—USA: DC, FL, GA, IL, LA, MD, MI, MO, NJ, NY, NC, OH, PA,

SC, TN, TX, VA, WV, DE: New Castle Co., Blackbird State Forest, White Rd Tract, 27 May 1997, M. A. Valenti coll. (1, RJRC); Kent Co., NG Wilder Wildlife Area, 26 May 1998, M. A. Valenti coll. (1, RJRC).

Phloeotribus liminaris (Harris)

Distribution.—USA: CT, DC, FL, IA, KY, MD, MA, MI, MS, NH, NJ, NY, NC, OH, PA, SC, VA, WV, DE: Kent Co., N. Dover, June 1999, M. A. Valenti coll. (1, RJRC); New Castle Co., Newark, April 1911 (5, UDCC).

Phloeosinus dentatus (Say)

Distribution.—USA: AL, AR, DC, FL, GA, IL, IA, KS, KY, MD, MA, MN, MS, MO, NE, NH, NJ, NY, NC, OH, OK, PA, SC, SD, TN, TX, VA, WV, DE: Sussex Co., Prime Hook Wildlife Refuge, 27 April 1998, M. A. Valenti coll. (3, UDCC).

Carphoborus bifurcus Eichhoff

Distribution.—USA: DC, FL, GA, MD, MS, MO, NY, NC, OK, PA, TN, VA, WV, DE: Kent Co., Dover, 15 April 1998, Del Dept of Ag coll. ex. Ipslure-baited trap, (1, RJRC); Sussex Co., Redden State Forest, Appenzellar Tract, 1 May 1997, M. A. Valenti coll. (1, RJRC).

Hylocurus rudis (LeConte)

Distribution.—USA: DC, GA, KS, KY, MD, MI, NJ, OH, PA, TX, VA, DE: Kent Co., Killens Pond SP, 1 July 1998, M. A. Valenti coll. (1, RJRC).

Hylocurus flaglereusis Blackman

Distribution.—USA: FL, MD, DE: Kent Co., Blackiston Wildlife Area, 23 April 1998, M. A. Valenti coll. (1, RJRC).

Micracisella opacicollis (LeConte)

Distribution.—USA: DC, IL, GA, KS, MA, MD, MI, MN, MO, NJ, NY, NC, OH, PA, VA, WV, DE: Kent Co., Milford, 5 May 1932 (1, UDCC).

Thysanoxes fimbriicornis LeConte

Distribution.—USA: DC, FL, IL, MD, MS, NJ, NC, PA, TX, VA, WV, DE: Kent Co., Milford Neck, 26 May 1998, M. A. Valenti coll. (6, RJRC).

Ips grandicollis (Eichhoff)

Distribution.—Australia: USA: AL, AR, CT, DC, FL, GA, IL, IN, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NH, NJ, NM, NY, NC, OH, PA, SC, TN, TX, VA, WV, WI, DE: New Castle Co., 24 Aug 1938, J. M. Amos coll. (1 UDCC); Sussex Co., Bethany Beach, 27 August 1974, Frank Boys coll. ex: Japanese black pine (2 UDCC).

Ips pini (Say)

Distribution.—USA: AK, AL, AR, CA, CO, CT, DC, FL, GA, ID, IL, IN, IA, KS, LA, ME, MD, MS, MI, MN, MS, MT, NE, NV, NH, NJ, NY, NC, OH, OR, PA, SD, TX, UT, VT, VA, WV, WI, WY, DE: New Castle Co., Wilmington, 14 April 1998, DDA coll. ex: ips lure-baited trap (1, RJRC).

Orthotomicus caelatus (Eichhoff)

Distribution.—Africa: USA: AK, AL, AR, CA, CO, CT, DC, FL, GA, ID, IL, IN, IA, KS, LA, ME, MD, MS, MI, MN, MS, MT, NE, NV, NH, NJ, NY, NC, OH, OR, PA, SD, TX, UT, VT, VA, WV, WI, WY, DE: Kent Co., Little Creek Wildlife Area, 22 April 1998, M. A. Valenti coll. (1, RJRC); Sussex Co., Redden State Forest, HQ Tract, 24 April 1998, M. A. Valenti coll. (1, RJRC).

Pityogenes hopkinsi Swaine

Distribution.—USA: CT, GA, IL, IN, IA, ME, MD, MA, MI, MN, NH, NJ, NY, NC, OH, PA, SC, TN, VA, WV, WI, DE: New Castle Co., Wilmington, 27 May 1998, DDA coll. ex: Ips lure-baited trap (2, RJRC).

Dryocoetes autographus (Ratzeburg)

Distribution.—Africa, Asia, Europe: USA: AK, CA, CO, ME, MD, MI, MN, MT, NV, NH, NM, NY, NC, OR, PA, SD, TN, UT, VA, WA, WV, WI, WY, DE: New Castle Co., Blackbird State Forest, Tybout Tract, 13 June 1997, M. A. Valenti coll. (1, RJRC).

Dryocoetes granicollis (LeConte)

Distribution.—USA: AR, DC, FL, GA, IL, KY, LA, MD, MO, NJ, NY, NC, OH, PA, TX, VA, DE: New Castle Co., Newark, 2 June 1901 (1, UDCC).

Lymantor decipiens (LeConte)

Distribution.—USA: IA, KY, ME, MD, MA, MI, MN, MS, NJ, NY, OH, PA, VA, WV, DE: New Castle Co., Blackbird State Forest, Tybout Tract, 7 August 1997, M. A. Valenti coll. (3, RJRC).

Xyloterinus politus Say

Distribution.—USA: CT, DC, GA, IL, KY, ME, MD, MA, MI, MO, MS, NH, NJ, NY, NC, OH, PA, VA, WV, WI, DE: Kent Co., Little Creek Wildlife Area, 22 April 1998, M. A. Valenti coll. (1, RJRC); New Castle Co., Newark, 14 March 1958, Donald MacCreery coll. (1, UDCC); Sussex Co., Redden State Forest, HQ Tract, 24 April 1998, M. A. Valenti coll. (1, RJRC).

Ambrosiodmus obliquus (LeConte)

Distribution.—Africa, South America: USA: DC, FL, GA, LA, MD, MS, NC, VA, DE: Kent Co., Blackiston Wildlife Area, 17 June 1999, M. A. Valenti coll. ex: funnel trap (3, RJRC); Sussex Co., Redden State Forest, Appenzellar Tract, 28 May 1997, M. A. Valenti coll. ex: turpentine and ethanol funnel trap (1, RJRC).

Ambrosiodmus rubricollis (Eichhoff)

Distribution.—Asia, Australia: USA: AL, CT, FL, MD, PA, SC, TN, VA, DE: Kent Co., Blackiston Wildlife Area, 1 October 1999, M. A. Valenti coll. ex: funnel trap (3, RJRC).

Ambrosiodmus tachygraphus
(Zimmermann)

Distribution.—USA: AL, DC, FL, GA, IL, MD, MS, NJ, NC, OH, PA, SC, VA, WV, DE: Sussex Co., Assawoman Wildlife Area, 27 April 1998, M. A. Valenti coll. (2, RJRC).

Euwallacea validus (Eichhoff)

Distribution.—Asia: USA: MD, NY, PA, DELAWARE: Kent Co., Blackiston Wildlife Area, 23 April 1998, M. A. Valenti coll. (2, RJRC); New Castle Co., Claymont, 20 May 1997, C. Bartlett coll. (1, UDCC); Sussex Co., Redden State Forest, HQ Tract, 24 April 1998, M. A. Valenti coll. (1, RJRC).

Xyleborus atratus Eichhoff

Distribution.—Asia: USA: FL, GA, MD, TN, VA, WV, DELAWARE: Kent Co., Blackiston Wildlife Area, 23 April 1998, M. A. Valenti coll. (5, RJRC); Sussex Co., Redden State Forest, HQ Tract, 24 April 1998, M. A. Valenti coll. (2, RJRC).

Xyleborus celsus Eichhoff

Distribution.—USA: AR, CT, DC, FL, GA, IL, IN, IA, KS, LA, MD, MI, MS, MO, NJ, NY, NC, OH, PA, SC, TX, VT, VA, WV, DELAWARE: New Castle Co., Newark, 22 June 1990, C. Bartlett coll. ex: blacklight trap (4, UDCC).

Xyleborus ferrugineus (Fabricius)

Distribution.—Africa, Asia, Australia, South America; USA: AL, AZ, AR, DC, FL, GA, HI, IL, IN, KY, LA, MD, MA, MI, MS, MO, NJ, NY, NC, OH, PA, SC, TN, TX, VA, WV, DELAWARE: Kent Co., NG Wilder Wildlife Area, 26 May 1998, M. A. Valenti coll. (1, RJRC); New Castle Co., Newark, 21 June 1991 (1, UDCC); Sussex Co., Redden State Forest, Owens Tract, 24 June 1998, M. A. Valenti coll. (1, RJRC).

Xyleborus pelliculosus Eichhoff

Distribution.—Asia: USA: MD, PA, DELAWARE: Kent Co., Blackiston Wild-

life Area, 23 April 1998, M. A. Valenti coll. (1, RJRC).

Xyleborus pubescens Zimmermann

Distribution.—USA: AL, AR, DC, FL, GA, KY, LA, MD, MS, NJ, NY, NC, PA, SC, TX, VA, WV, DE: Kent Co., Little Creek Wildlife Area, 25 June 1998, M. A. Valenti coll. (1, RJRC); New Castle Co., Newark, 20 May 1907 (2, UDCC); Sussex Co., Bethany Beach, April 9, 1932 (2, UDCC).

Xyleborus sayi (Hopkins)

Distribution.—USA: CT, DC, IL, IN, KY, ME, MD, MI, MO, NJ, NY, NC, OH, PA, TN, VA, WV, DE: Sussex Co., Redden State Forest, HQ Tract, 11 August 1997, M. A. Valenti coll. (1, RJRC).

Xylosandrus crassiusculus (Motschulsky)

Distribution.—Africa, Asia; USA: FL, GA, LA, MD, MS, NC, SC, TX, DELAWARE: Kent Co., Little Creek Wildlife Area, 22 April 1998, M. A. Valenti coll. (2, RJRC); Sussex Co., Redden State Forest, HQ Tract, 26 May 1998, M. A. Valenti coll. (2, RJRC).

Xylosandrus germanus (Blandford)

Distribution.—Asia, Europe; USA: CT, IL, IN, KY, NJ, NY, NC, OH, PA, WV, DELAWARE: Kent Co., Blackiston Wildlife Area, 23 April 1998, M. A. Valenti coll. (4, RJRC); New Castle Co., Newark, 21 May 1983, C. Sanford coll. ex: *Lirodendron tulipifera* (1, UDCC); Sussex Co., Redden State Forest, HQ Tract, 24 April 1998, M. A. Valenti coll. (1, RJRC).

Hypothenemus crudiae (Panzer)

Distribution.—Africa, Asia, South America; USA: AL, AR, DC, FL, GA, IN, KS, KY, LA, MD, MS, NJ, NY, NC, PA, SC, TN, TX, VA, WV, DELAWARE: Sussex Co., Redden State Forest, Owens Tract, 24 June 1998, M. A. Valenti coll. ex: Lindgren funnel trap with ethanol and yellow poplar branch (1, RJRC).

Hypothenemus dissimilis (Zimmermann)

Distribution.—USA: AL, CT, DC, FL, GA, IL, IN, LA, KY, MD, MN, MS, MO, NJ, NY, NC, OH, PA, SC, TN, TX, VA, WV. DELAWARE: New Castle Co., Newark, 21 May 1983, C. Sanford coll. ex: *Liriodendron tulipifera* (1, UDCC).

Hypothenemus eruditus Westwood

Distribution.—Africa, Asia, Australia, Europe, South America: USA: AL, AR, CA, DC, FL, GA, IL, LA, MD, MI, MS, NH, NJ, NY, NC, PA, SC, TN, TX, VA, WV. DELAWARE: New Castle Co., Newark, 15 May 1906 (1, UDCC).

Conophthorus coniperda (Schwarz)

Distribution.—USA: ME, MD, MA, MI, MN, NH, NJ, NY, NC, PA, VA, WV, WI. DELAWARE: New Castle Co., Wilmington, 6 May 1993, J. Plummer coll. ex: Ipslure-baited funnel trap (1, RJRC).

Corthylus columbianus Hopkins

Distribution.—USA: DC, FL, GA, IN, KS, MD, MA, MO, NJ, NC, SC, TN, VT, VA, WV. DELAWARE: Kent Co., Dover, 15 April 1998, Del Dept of Ag. coll. ex: Ipslure-baited trap (1, RJRC); New Castle Co., Iron Hill County Park, 24 August 1998, M. A. Valenti coll. (1, RJRC); Sussex Co., Redden State Forest, Owens Tract, 26 May 1998, M. A. Valenti coll. (1, RJRC).

Gnathotrichus materiarius (Fitch)

Distribution.—Europe: USA: AL, AR, DC, FL, GA, LA, ME, MD, MA, MI, MN, MS, MO, NE, NH, NJ, NY, NC, OK, PA, SC, TX, VA, VT, WV, WI. DELAWARE: Kent Co., Little Creek Wildlife Area, 22 April 1998, M. A. Valenti coll. (1, RJRC); Sussex Co., Redden State Forest, HQ Tract, 24 April 1998, M. A. Valenti coll. (2, RJRC).

Monarthrum fasciatum (Say)

Distribution.—USA: AR, CT, DC, FL, GA, IL, IN, IL, KS, KY, LA, MD, MA, MI, MS, MO, NJ, NY, NC, OH, PA, SC, TN,

TX, VA, WV, WI. DELAWARE: Kent Co., NG Wilder Wildlife Area, 22 April 1998, M. A. Valenti coll. (2, RJRC); New Castle Co., Newark, 20 April 1912 (17, UDCC).

Monarthrum mali (Fitch)

Distribution.—USA: AL, AR, CA, CT, DC, FL, IL, IN, IL, IA, KY, LA, ME, MD, MA, MI, MN, MS, NJ, NY, NC, OH, PA, TN, TX, VA, VT, WV, WI. DELAWARE: New Castle Co., Newark, 20 May 1907 (1, UDCC).

Pityophthorus cariniceps LeConte

Distribution.—USA: CT, IN, KY, ME, MD, MA, MI, MN, NH, NY, NC, OH, PA, SC, VA, WI. DELAWARE: New Castle Co., Blackbird State Forest, 27 May 1997, M. A. Valenti coll. (3, RJRC).

Pityophthorus confusus Blandford

Distribution.—USA: AL, AR, FL, GA, LA, MD, MS, NC, PA, SC, TX, VA, WV, DE: New Castle Co., Wilmington, 16 August 1993 (1, RJRC); Sussex Co., Redden State Forest, HQ Tract, 1 May 1997, M. A. Valenti coll. (2, RJRC).

Pityophthorus liquidambarus Blackman

Distribution.—USA: AR, CT, DC, FL, GA, IL, IN, IA, LA, MD, MS, NC, WV, DE: Sussex Co., Redden State Forest, HQ Tract, 28 July 1997, M. A. Valenti coll. (1, RJRC).

Pityophthorus opaculus LeConte

Distribution.—USA: AK, AZ, CA, CO, ID, ME, MD, MI, MN, NV, NH, NM, NY, PA, SD, UT, WV, WY, DE: New Castle Co., Wilmington, 9 June 1993, Del Dept of Ag. coll. ex. pinene-baited trap (1, RJRC).

Pityophthorus puberulus (LeConte)

Distribution.—USA: DC, IN, KS, KY, ME, MD, MA, MI, MN, NH, IA, NJ, NY, NC, OH, PA, RI, VA, WV, WI. DE: New Castle Co., Wilmington, 28 April 1998, Del Dept of Ag. coll. ex. pinene-baited trap (1, RJRC); Sussex Co., Redden State Forest,

Owens Tract, 24 June 1998, M. A. Valenti coll. (1, RJRC).

Pityophthorus scriptor Blackman

Distribution.—USA: GA, MS, NC, OK, TN, TX. DELAWARE: Kent Co., Blackburn Wildlife Area, 23 April 1998, M. A. Valenti coll. (2, RJRC).

Pseudopityophthorus minutissimus
(Zimmermann)

Distribution.—USA: AR, DC, FL, GA, IL, IA, KS, LA, ME, MD, MS, MA, MI, NH, NJ, NY, NC, PA, SC, VA, WV, WI, DE: New Castle Co., Newark, 9 February 1984, D. F. Bray coll. ex: oak firewood (12, UDCC).

Pseudopityophthorus pubescens Blackman

Distribution.—USA: MD, NC, OK, VA, DE: New Castle Co., Iron Hill County Park, 21 April 1998, M. A. Valenti coll. (1, RJRC).

LIST OF DELAWARE SCOLYTIDAE

a = Species newly reported in Delaware
b = Exotic species found in Delaware

Hylesininae

Hylastini

Hylastes porculus Erichson—a
Hylastes salebrosus Eichhoff—a
Hylastes tenuis Eichhoff—a
Hylurgops rugipennis pinifex (Fitch)—a

Hylesinini

Hylesinus aculeatus Say—a

Tomicini

Dendroctonus frontalis (Zimmermann)—a
Dendroctonus terebrans (Olivier)
Dendroctonus valens LeConte—a
Hylurgopinus rufipes (Eichhoff)

Bothrosternini

Cnesinus strigicollis LeConte—a

Phloeotribini

Phloeotribus liminaris (Harris)—a

Phloeosinini

Chramesus hicoloriae LeConte
Phloeosinus dentatus (Say)—a

Polygraphini

Carphoborus bifurcus Eichhoff—a

Scolytinae

Scolytini

Scolytus multistriatus (Marshall)—b
Scolytus quadripinosus (Say)
Scolytus rugulosus (Muller)—b

Micracini

Hylocurus rudis (LeConte)—a
Hylocurus flaglerensis Blackman—a
Micracisella opacicollis (LeConte)—a
Thysanoes fimbriicornis LeConte—a

Ipini

Ips calligraphus (Germar)
Ips grandicollis (Eichhoff)—a
Ips pini (Say)—a
Orthotomicus caelatus (Eichhoff)—a
Pityogenes hopkinsi Swaine—a

Dryocoetini

Dryocoetes autographus (Ratzburg)—a
Dryocoetes granicollis (LeConte)—a
Dryoxylon onoharaensum (Murayama)—a
Lymantor decipiens (LeConte)—a

Xyloterini

Xyloterinus politus Say—a

Xyleborini

Ambrosiodmus obliquus (LeConte)—a
Ambrosiodmus rubricollis (Eichhoff)—a, b
Ambrosiodmus tachygraphus (Zimmermann)—a
Euwallacea validus (Eichhoff)—a, b
Xyleborinus saxeseni (Ratzeburg)—b
Xyleborus affinis Eichhoff
Xyleborus atratus Eichhoff—a, b
Xyleborus californicus Wood—b
Xyleborus celsus Eichhoff—a
Xyleborus ferrugineus (Fabricius)—a
Xyleborus pelliculosus Eichhoff—a, b

Xyleborus pubescens Zimmermann—a
Xyleborus sayi (Hopkins)—a
Xylosandrus crassiusculus (Motschulsky)—a, b
Xylosandrus germanus (Blandford)—a, b

Cryphalini

Hypothenemus crudiae (Panzer)—a, b
Hypothenemus dissimilis (Zimmermann)—a
Hypothenemus eruditus Westwood—a, b
Hypothenemus seriatus (Eichhoff)—b

Corthylini

Conophthorus coniperda (Schwarz)—a
Corthylus columbianus Hopkins—a
Gnathotrichus materiarius (Fitch)—a
Monarthrum fasciatum (Say)—a
Monarthrum mali (Fitch)—a
Pityophthorus cariniceps LeConte—a
Pityophthorus confusus Blandford—a
Pityophthorus liquidambarus Blackman—a
Pityophthorus opaculus LeConte—a
Pityophthorus puberulus (LeConte)—a
Pityophthorus pulicarius (Zimmermann)
Pityophthorus scriptor Blackman—a
Pseudopityophthorus minutissimus (Zimmermann)—a
Pseudopityophthorus pubescens Blackman—a

ACKNOWLEDGMENTS

Donald E. Bright identified or verified the identity of many of the specimens, his help is greatly appreciated. We also thank Charles Bartlett, University of Delaware, for the loan of specimens and the Delaware Department of Agriculture, Plant Industries Section, for providing specimens from their USDA Cooperative Agricultural Pest Survey. Funding was provided through a USDA, Forest Service Focus Funding Grant.

LITERATURE CITED

- Atkinson, T. H., R. J. Rabaglia, and D. E. Bright. 1990. Newly detected exotic species of *Xyleborus* (Coleoptera: Scolytidae) with a revised key to species in eastern North America. *Canadian Entomologist* 122: 92–104.
- Bright, D. E. and R. J. Rabaglia. 1999. *Dryoxylon*, a new genus for *Xyleborus onoharaensis* Murayama, recently established in the southeastern United States (Coleoptera: Scolytidae). *Coleopterists Bulletin* 53(4): 333–337.
- Bright, D. E. and R. E. Skidmore. 1997. A Catalog of Scolytidae and Platypodidae (Coleoptera), Supplement I (1990–1994). National Research Council Press, Ottawa, Ontario, 368 pp.
- Hoehbeke, E. R. 1991. An Asian ambrosia beetle, *Ambrosiodinus lewisi*, new to North America (Coleoptera: Scolytidae). *Proceedings of the Entomological Society of Washington* 93: 420–424.
- Phillips, C. E. 1978. Wildflowers of Delaware and the Eastern Shore. Delaware Nature Education Society, Inc., Hockessin, Delaware, 303 pp.
- Rabaglia, R.J. 2003. Annotated list of the bark and ambrosia beetles (Coleoptera: Scolytidae) of Maryland, with new distributional records. *Proceedings of the Entomological Society of Washington*, 105: 373–379.
- Rabaglia, R. J. and G. L. Williams. 2002. Two species of western North American *Hylesinus* Fabricius (Coleoptera: Scolytidae) new to the eastern United States. *Proceedings of the Entomological Society of Washington*, 104: 1058–1060.
- Taber, W. S. 1939. Delaware Trees: A Guide to the Identification of the Native Tree Species. Associates International, Inc., Wilmington, Delaware, 254 pp.
- Tatnall, R. R. 1946. Flora of Delaware and the Eastern Shore. The Society of Natural History of Delaware, 313 pp.
- Vandenberg, N. J., R. J. Rabaglia, and D. E. Bright. 2000. New records of two *Xyleborus* (Coleoptera: Scolytidae) in North America. *Proceedings of the Entomological Society of Washington*, 102: 62–68.
- Wood, S. L. and D. E. Bright. 1992. A Catalog of Scolytidae and Platypodidae (Coleoptera), Part 2: Taxonomic Index. *Great Basin Naturalist Memoirs* No. 13.